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EXAMINER				
GRAHAM, CHANTREL LORAN				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/551,914

Applicant(s)

BLANCHARD, GILBERT

Examiner

CHANTEL GRAHAM

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-22 and 24-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-22 and 24-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

1. The amendment filed 4/5/2010 has been entered and fully considered.
2. The 112 rejection for claim 24 is withdrawn in light of Applicant's amendments.
3. Claim 24 has been amended.
4. New claims 35-37.
5. Claims 16-22 and 24-37 are pending and have been fully considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 35 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for at least 90%, does not reasonably provide enablement for 1% to 32% by weight of rare earth oxide and element (E). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. It has been well established that there must be a reasonable correlation between the scope of the exclusive right granted to a patent applicant and the scope of enablement set forth in the patent application. In re Fischer, 427 F.2d 833, 839; 166 USPQ 18, 24 (CCPA 1970)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 16-22 and 24-37, are rejected under 35 USC 103 (a) as being obvious over BLANCHARD ET AL. (WO0110545) used ENGLISH TRANSLATION BLANCHARD ET AL. (US PG PUB 20060005465), and in view of WAKEFIELD (US PG PUB 20050066571). Hereby referred to as BLANCHARD and WAKEFIELD.

9. Although WO0110545 is not in the English language, the examiner is relying on US PG PUB 20060005465 as the English translation thereof as is apparent because the US reference clearly shown on page 1 that this US reference is related to the WO reference. The paragraphs cited in the office action all refer to the paragraphs in the English transition (i.e. US reference).

Regarding claims 16-20, 22 and 28-29, and 36-37

BLANCHARD teaches an organic colloidal dispersion comprising: particles of at least a compound based on at least a rare earth, at least an acid, which is an amphiphilic acid (para 41), and at least a diluent, such as Cryo-TEM which is a preservative (**antioxidant**), characterized in that at least 90% of the particles are monocrystalline. The invention also concerns the method for preparing said dispersion and its use as an additive to diesel fuel for internal combustion engines (abstract), and conventional fuel (para 102). BLANCHARD also teaches that the rare earth can be selected from cerium, lanthanum, yttrium, neodymium, gadolinium and praseodymium (para 30).

Although BLANCHARD does not specifically teach antioxidants, this reference does in fact teach diluents that are cryo-TEM, aromatic solvents and alcohols which are disclosed as preservatives (see para 26) and it is the examiners position that antioxidants are also known in the art as preservatives. A skilled artisan would appreciate that additives are multifunctional, and it is known in the art that antioxidants and preservatives both have properties that inhibit oxidation. It has been held that obviousness is not rebutted by merely recognizing additional advantages or latent properties present in the prior art additive. Further, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd.Pat. App. & Inter. 1985); and burden is upon applicant to show evidence of criticality.

BLANCHARD does not explicitly disclose that the diluent (antioxidant) are phenols, however WAKEFIELD does disclose the use of phenols as antioxidants.

WAKEFIELD teaches an additive comprising cerium oxide, a rare earth compound, a metal from group IIA and IIIB (**abstract**); and an antioxidant that is phenolic an alkylphenol such as 2,6-di-tert-butylphenol (paragraph 53); which can be in an organic solvent (**paragraph 37**); and an organic carboxylic acid (**paragraph 27**) which is an amphiphilic acid.

It would have been obvious to one of ordinary skill in the art to combine the additive of BLANCHARD with the additive of WAKEFIELD if said composition was so desired, because all the claimed elements were known in the prior art at the time of invention and the motivation to combine BLANCHARD and WAKEFIELD is taught in

WAKEFIELD in paragraph 5, that for cerium to be effective in diesel fuels as an additive it must be used in a stable dispersion.

Regarding claim 21:

Modified BLANCHARD teaches in paragraph 33 that the colloidal dispersions can also comprise at least one other element (E) selected from groups IIA, IVA, VIIA, IB, IIB, IIIB and IVB of the periodic table.

Regarding claim 24:

Modified BLANCHARD teaches in paragraph 37 the particles in the dispersions have a fine grain size with a narrow size distribution. They have a d_{50} in the range 1 to 5 nm.

Regarding claim 25:

Modified BLANCHARD teaches in abstract as describe in the rejection of claim 16 as well as the particle are not larger than 200 nm and d_{80} d_{90} is not more than 5 nanometers (para 198 and 127); and the aggregates comprising 1 (single) to 5 crystallites (para 25-26); the acid is an amphiphilic acid comprising at least one acid with 11 to 50 (10 to 50) carbon atoms, having at least one alpha, beta, gamma, or delta branch of the atom bearing the acidic hydrogen (para 41-50).

Regarding claim 26:

Modified BLANCHARD teaches in Example 1 the preparation of an organic colloidal solution of CeO_2 produced From Cerium (III) Acetate, which is the preparation of an organic colloidal solution of cerium oxide. In paragraph 202 BLANCHARD teaches that the precipitate obtained was dried with a Buchi spray drier.

Regarding claim 27:

Modified BLANCHARD teaches in paragraph 43 examples of fatty acids: tall oil, soya oil, tallow, linseed oil, oleic acid, linoleic acid, stearic acid and its isomers, pelargonic acid, capric acid, lauric acid, myristic acid, dodecylbenzenesulphonic acid, 2-ethyl hexanoic acid, naphthenic acid, hexoic acid, toluene sulphonic acid, toluene phosphonic acid, lauryl sulphonic acid, lauryl phosphonic acid, palmityl sulphonic acid, and palmityl phosphonic acid.

Regarding claims 30-32:

Modified BLANCHARD teaches in paragraph 83-86 that the colloidal dispersion comprising particles of a rare earth compound, an acid, an organic phase, an antioxidant, and an element E, wherein an atomic ratio of antioxidant to rare earth compound and the element E is 0.2 to 0.8.

Regarding claim 33:

Modified BLANCHARD teaches in paragraph 198-199 the preparation of a colloidal dispersion based on cerium-iron in respective proportions of 90/10 by weight.

Regarding claim 34:

Modified BLANCHARD teaches in paragraph 111 wherein a weight ratio between the organic phase and acid is 0.5.

Regarding claim 35:

Modified BLANCHARD teaches in paragraph 63 wherein the concentration is preferably in the range 1% to 32% by weight of rare earth oxide(s) and element(s) (E) with respect to the total dispersion weight.

Response to Arguments

10. Applicant's arguments filed 4/5/2010 have been fully considered but they are not persuasive.

Applicant argues:

The rejection admits that "Blanchard does not specifically teach antioxidants," but contends that "the diluents of aromatic solvents and alcohols are equivalent to antioxidants" and that the "burden is upon Applicants to show evidence otherwise." Office action, pp. 3-4. Applicants respectfully submit that no legally sufficient basis exists for such a characterization of Blanchard, and further that no basis exists to shift the burden to Applicants. Applicants interpret the rejection to contend that the diluents of aromatic solvents and alcohols in Blanchard inherently include antioxidants. However, for a rejection based on inherency, the Examiner must first provide a rationale or evidence tending to show inherency. MPEP 2111.04.IV. No such rationale or evidence has been provided. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijkkaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Lery, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). No evidence of record indicates that the diluents of aromatic solvents and alcohols of Blanchard necessarily include antioxidants. Blanchard discloses colloidal dispersions of rare earth. There is no disclosure in Blanchard of the addition of an antioxidant agent.

Examiner respectfully disagrees and maintains the rejection referenced above. In addition, although BLANCHARD does not specifically teach antioxidants, this reference does in fact teach diluents that are cryo-TEM, aromatic solvents and alcohols which are disclosed as preservatives (see para 26) and it is the examiners position that antioxidants are also known in the art as preservatives. A skilled artisan would appreciate that additives are multifunctional, and it is known in the art that antioxidants and preservatives both have properties that inhibit oxidation. It has been held that obviousness is not rebutted by merely recognizing additional advantages or latent properties present in the prior art additive. Further, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd.Pat. App. & Inter. 1985); and burden is upon applicant to show evidence of criticality.

Applicant argues:

Wakefield does not describe nor suggest a dispersion comprising an antioxidant, but merely discloses the presence of an antioxidant in a fuel. Although Wakefield desires stability in dispersion, Wakefield fails to recognize or suggest that the addition of the claimed antioxidant agent to the dispersion, and not the fuel, will improve the stability of the dispersion. Wakefield does not teach dispersions comprising an antioxidant, and therefore the combination of Blanchard and Wakefield would not result in the claimed invention.

This is not deemed persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, contrary to Applicant arguments WAKEFIELD does teaches an additive comprising cerium oxide, a rare earth compound, a metal from group IIA and IIIB (**abstract**); and an antioxidant that is phenolic an alkylphenol such as 2, 6-di-tert-butylphenol (paragraph 53); which can be present in an organic solvent (**paragraph 37**); and an organic carboxylic acid (**paragraph 27**) which is an amphiphilic acid. Also, WAKEFIELD in paragraph 5, teaches that for cerium to be effective in diesel fuels as an additive it must be used in a stable dispersion. The fact that WAKEFIELD discloses the use of the phenolic additive used in dispersion; the Examiner position is that a reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozgek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, a reference can be used for all and any of it realistically teaches and is not limited to the disclosure in its preferred embodiments See *In re Van Marter*, 144 USPQ 421.

Applicant argues:

Superior and Unexpected Results

There is no teaching in the art as applied that the presence of the antioxidant in the dispersion enhances the stability of the particles in the fuel, and the inventors found that the claimed dispersions exhibited superior properties. Evidence of obvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut prima facie obviousness. MPEP 716.02(a).11. The PTO must consider comparative data in the specification in determining whether the claimed invention is patentable. In re Soni, 34 USPQ2d 1684, 1687

(Fed. Cir. 1995). Here, it was found that the addition of antioxidant improved the ability of cerium to remain in a condition of colloidal dispersion as compared to comparative examples without antioxidant. These superior and unexpected results are cited in the present specification. See Specification, Example 1.

This is not deemed persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, Applicant argues that the claimed composition produces unexpectedly superior results, and points to Example 1. However, the composition used in Example 1 is not commensurate in scope with the claims. In particular, the sample compositions comprise specific concentrations of the antioxidant, whereas the claim allows for a broad range of concentrations; and any rare earth compound, any acid, and any organic phase. Applicant therefore has not shown evidence of unexpected results sufficient to rebut the prima facie case of obviousness set forth above.

Applicant argues:

Claim 25 recites, inter alia, particles in the form of aggregates whose d_{80} advantageously d_{80} is not more than 5 nanometers. Blanchard discloses particles with a $ds0$ of 2.5 nm, and is silent with regard to d_{80} or d_{90} . Accordingly, because the references as applied fail to disclose the features of the claim, Applicants respectfully submit that claim 25 is patentable

This is not deemed persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, contrary to Applicant arguments BLANCHARD does teach in the abstract as describe in the rejection of claim 16 above; as well as the particle are not larger than 200nm and d_{80} d_{90} is not more than 5 nanometers (para198 and 127); and the aggregates comprising 1 (single) to 5 crystallites (para 25-26); the acid is an amphiphilic acid comprising at least one acid with 11 to 50 (10 to 50) carbon atoms, having at least one alpha, beta, gamma, or delta branch of the atom bearing the acidic hydrogen (para 41-50).

Applicant argues:

Separate Patentability of Claim 35

The additive of new claim 35 recites depends from claim 30 and recites 1% to 32% by weight of the rare earth oxide and element E, with respect to the total weight of the dispersion. In contrast, Wakefield discloses cerium oxide of about 4 ppm, or less desirably 40 ppm. Wakefield, IT'0039]. One of ordinary skill in the art would have no reason to combine the cited documents and further modify them to produce a dispersion comprising, inter alia, an antioxidant and 1% to 32% by weight of the rare earth oxide and element E.

This is not deemed persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, BLANCHARD teaches in paragraph 63 wherein the concentration is preferably in the range 1% to 32% by weight of rare earth oxide(s) and element(s) (E) with respect to the total dispersion weight.

Conclusion

11. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHANTEL GRAHAM whose telephone number is (571)270-5563. The examiner can normally be reached on M-Th 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on 571-272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 1797

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